

## CLAIMS

What is claimed is:

1. A method for adaptively adjusting values, the method comprising:  
maintaining a first residue amount corresponding to a first set of one or more  
5 packet queues or streams of packets;  
identifying a first particular packet length of a first packet associated with the first  
set of said one or more packet queues or streams of packets;  
determining a first adjusted packet length, corresponding to the first particular  
packet length, based on the first particular packet length and the first residue amount; and  
10 updating the first residue amount based on the first residue amount and the first  
particular packet length.
2. The method of claim 1, comprising performing one or more packet operations  
associated with the first packet based on the first adjusted packet length.
3. The method of claim 2, wherein said one or more packet operations associated  
15 with the first packet includes scheduling the first packet.
4. The method of claim 1, comprising:  
maintaining a second residue amount corresponding to a second set of said one or  
more packet queues or streams of packets;  
identifying a second particular packet length of a second packet associated with  
20 the second set of said one or more packet queues or streams of packets;  
determining a second adjusted packet length, corresponding to the second  
particular packet length, based on the second particular packet length and the second  
residue amount; and  
updating the second residue amount based on the second residue amount and the  
25 second particular packet length.

5. The method of claim 4, comprising performing one or more packet operations associated with the first and second packets based on the first and second adjusted packet lengths.

6. The method of claim 5, wherein said one or more packet operations associated with the first and second packets includes scheduling the first and second packets.

7. The method of claim 1, wherein the first particular packet length includes a first least significant portion; and

wherein said updating the first residue amount includes adding the first residue amount and the first least significant portion.

8. The method of claim 7, wherein the first particular packet length includes the first least significant portion and a first most significant portion; and

wherein said determining the first adjusted packet length includes identifying whether to use the first most significant portion as the first adjusted packet length or a value based on the first most significant portion.

9. The method of claim 8, wherein the value is one more than the first most significant portion.

10. The method of claim 8, wherein said identifying whether to use the first most significant portion as the first adjusted packet length or a value based on the first most significant portion is performed based on a result of said updating the first residue amount.

11. The method of claim 8, comprising performing one or more packet operations associated with the first packet based on the first adjusted packet length.

12. The method of claim 11 wherein said one or more packet operations associated with the first packet includes scheduling the first packet.

13. The method of claim 1, wherein the first residue amount is a lagging behind indication.

14. The method of claim 1, wherein the first residue amount is a forward looking indication.

5        15. An apparatus for adaptively adjusting values, the apparatus comprising:  
a set of one or more packet queues;  
a storage mechanism configured to store a residue amount corresponding to the  
set of said one or more packet queues; and  
an update mechanism configured to determine an adjusted packet length of a  
10 particular packet associated with the set of one or more packet based on a packet length  
of the particular packet and the residue amount, and to update the storage mechanism  
with an updated residue amount.

16. The apparatus of claim 15, wherein the packet length includes a most  
significant portion and a least significant portion; and  
15        wherein the update mechanism is configured to identify the adjusted packet length  
from one of a plurality of possible adjusted packet lengths, the plurality of possible  
adjusted packet lengths including the most significant portion and one more than the most  
significant portion.

17. The apparatus of claim 16, wherein the update mechanism is configured to  
20 update the residue amount based on the least significant portion and the residue amount.

18. The apparatus of claim 15, comprising a packet processing mechanism  
configured to process packets including processing the particular packet based on the  
adjusted packet length.

19. The apparatus of claim 15, comprising a scheduler configured to schedule  
25 packets including scheduling the particular packet based on the adjusted packet length.

20. The apparatus of claim 15, wherein the first residue amount is a lagging behind indication.

21. The apparatus of claim 15, wherein the first residue amount is a forward looking indication.

5        22. The apparatus of claim 15, wherein the packet length includes a most significant portion and a least significant portion; and

          wherein the update mechanism is configured to identify the adjusted packet length from one of a plurality of possible adjusted packet lengths, the plurality of possible adjusted packet lengths consisting of the most significant portion and one more than the  
10    most significant portion.

23. The apparatus of claim 15, wherein the packet length includes a most significant portion and a least significant portion;

          and the update mechanism is configured to update the residue amount based on the least significant portion and the residue amount.

15        24. An apparatus for adaptively adjusting values, the apparatus comprising:  
          means for maintaining a first residue amount corresponding to a first set of one or more packet queues or streams of packets;

          means for identifying a first particular packet length of a first packet associated with the first set of said one or more packet queues or streams of packets;

20        means for determining a first adjusted packet length, corresponding to the first particular packet length, based on the first particular packet length and the first residue amount; and

          means for updating the first residue amount based on the first residue amount and the first particular packet length.

25. The apparatus of claim 24, comprising means for performing one or more packet operations associated with the first packet based on the first adjusted packet length.

5      26. The apparatus of claim 24, comprising means for scheduling the first packet based on the first adjusted packet length.

27. The apparatus of claim 24, wherein the first particular packet length includes a first least significant portion; and

        wherein said means for updating the first residue amount includes means for adding the first residue amount and the first least significant portion.

10      28. The apparatus of claim 27, wherein the first particular packet length includes the first least significant portion and a first most significant portion; and

        wherein said means for determining a first adjusted packet length includes means for identifying whether to use the first most significant portion as the first adjusted packet length or a value based on the first most significant portion.

15      29. The apparatus of claim 28, wherein the value is one more than the first most significant portion.

30. The apparatus of claim 24, wherein the first residue amount is a lagging behind indication.

20      31. The apparatus of claim 24, wherein the first residue amount is a forward looking indication.

32. A computer-readable medium containing computer-executable instructions for performing steps for adaptively adjusting values, said steps comprising:

maintaining a first residue amount corresponding to a first set of one or more packet queues or streams of packets;

5 identifying a first particular packet length of a first packet associated with the first set of said one or more packet queues or streams of packets;

determining a first adjusted packet length, corresponding to the first particular packet length, based on the first particular packet length and the first residue amount; and

10 updating the first residue amount based on the first residue amount and the first particular packet length.

33. The computer-readable medium of claim 32, wherein said steps comprise performing one or more packet operations associated with the first packet based on the first adjusted packet length.

15 34. The computer-readable medium of claim 32, wherein said steps comprise scheduling the first packet based on the first adjusted packet length.

35. The computer-readable medium of claim 32, wherein the first particular packet length includes a first least significant portion; and

wherein said updating the first residue amount includes adding the first residue amount and the first least significant portion

20 36. The computer-readable medium of claim 35, wherein the first particular packet length includes the first least significant portion and a first most significant portion; and

25 wherein said determining the first adjusted packet length includes identifying whether to use the first most significant portion as the first adjusted packet length or a value based on the first most significant portion.

37. The computer-readable medium of claim 36, wherein the value is one more than the first most significant portion.

38. The computer-readable medium of claim 36, wherein said identifying whether to use the first most significant portion as the first adjusted packet length or a value based  
5 on the first most significant portion is performed based on a result of said updating the first residue amount.

39. The computer-readable medium of claim 36, wherein said steps comprise performing one or more packet operations associated with the first packet based on the first adjusted packet length.

10 40. The computer-readable medium of claim 36, wherein said steps comprise scheduling the first packet based on the first adjusted packet length.

41. The computer-readable medium of claim 32, wherein the first residue amount is a lagging behind indication.

15 42. The computer-readable medium of claim 32, wherein the first residue amount is a forward looking indication.